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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/774,941	01/31/2001	Robert K. Tendler	TT-118	6177

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Robert K. Tendler
65 Atlantic Avenue
Boston, MA 02110

[REDACTED] EXAMINER

LELE, TANMAY S

ART UNIT	PAPER NUMBER
2684	2

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/774,941	TENDLER, ROBERT K.
Examiner	Art Unit	
Tanmay S Lele	2684	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 31 January 2001 .

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-20 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-20 is/are rejected.

7) Claim(s) 14 is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 31 January 2001 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) Notice of References Cited (PTO-892) 4) Interview Summary (PTO-413) Paper No(s). _____
2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) Notice of Informal Patent Application (PTO-152)
3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____. 6) Other: _____

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: page 2, “-160 dB” should be “-160 dBm” (should be noted that the noise floor in a 1 Hz bandwidth is -173 dBm and hence it is assumed that the bandwidth of reference is 10 Hz in this case). Appropriate correction is required.

Claim Objections

2. Claim 14 is objected to because of the following informalities: method depends on apparatus. Assumed to depend on claim 13. Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 5, 10, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kabler et al. (Kabler, US Patent No. 6,128,515) in view of McConnell et al. (McConnell, US Patent No. 6,593,897).

Regarding claim 1, Kabler teaches of a method of minimizing interference from wireless handset components which interferes with the receipt of GPS signals by a GPS receiver located at the handset in which the wireless phone has a motherboard, comprising the steps of: spacing the GPS receiver from the phone motherboard (Figures 3 and 4 and column 4, lines 1 – 20).

Kabler does not specifically teach of providing shielding between the GPS receiver and the motherboard.

In a related art dealing with a GPS apparatus, McConnell teaches of providing shielding between the GPS receiver and the motherboard (Figure 6 and column 2, lines 16 – 18).

It would have been obvious to one skilled in the art at the time of invention to have included into Kabler's mobile, McConnell's shielding, for the purposes of confining and shielding from RF leakage, as taught by McConnell.

Regarding claim 5, Kabler in view of McConnell, teach all the claimed limitations as recited in claim 1. McConnell further teaches of including the step of providing a physical barrier between the GPS receiver and the motherboard, the barrier having an electrically conductive coating thereon (starting column 1, line 63 and ending column 3, line 7; note the shielding provides for both).

Regarding claim 10, Kabler in view of McConnell teach all the claimed limitations as recited in claim 1. Kabler further teaches of wherein the wireless handset carries a patch type GPS antenna with a ground plane and a GPS output connector (column 4, lines 21 – 24) and McConnell further teaches of including the step of providing shielding around the output connector (Figure 1 and column 3, lines 8 – 14).

Regarding claim 15, Kabler teaches of a system for providing a GPS receiver in a wireless handset such that interference between the components of the handset and the GPS receiver is minimized to a sufficient extent to permit robust receipt of signals by the GPS receiver from GPS satellites (Figures 3 and 4 and column 4, lines 1 – 20), comprising: a wireless handset housing; a phone motherboard located within said housing (Figures 3 and 4 and column

4, lines 1 – 20); a GPS receiver spaced from one side of said phone motherboard (Figures 3 and 4 and column 4, lines 1 – 20).

Kabler does not specifically teach of shielding interposed between said GPS receiver and said motherboard.

In a related art dealing with a GPS apparatus, McConnell teaches of shielding interposed between said GPS receiver and said motherboard (Figure 6 and column 2, lines 16 – 18).

It would have been obvious to one skilled in the art at the time of invention to have included into Kabler's mobile, McConnell's shielding, for the purposes of confining and shielding from RF leakage, as taught by McConnell.

5. Claims 2, 3, 7, 19, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kabler et al. (Kabler, US Patent No. 6,128,515) in view of McConnell et al. (McConnell, US Patent No. 6,593,897) as applied to claim 1 above, and further in view of Kalis (Kalis, US Patent No. 6,215,671).

Regarding claims 2, Kabler in view of McConnell teach all the claimed limitations as recited in claim 1. Kabler further teaches of wherein the motherboard has ground plane (column 4, lines 1 – 20; note the concept is inherent to all boards in general as if current is to flow, a ground must be present).

Kabler does not specifically teach of including the step of electrically connecting the shielding to the ground plane of the motherboard (though it should be noted that Kabler teaches of operatively combining all boards in column 4, lines 1 – 5).

In a related art dealing with connecting circuit boards, Kalis teaches of including the step of electrically connecting the shielding to the ground plane of the motherboard (Figure 4, starting

column 1, line 66 and ending column 2, line 2 and column 3, lines 26 – 49; note that McConnell's shield is connected to ground).

It would have been obvious to one skilled in the art at the time of invention to have included into Kabler and McConnell's mobile, Kalis' board connectivity methods to create electrical connections (and thus a common ground), for the purposes of allowing boards to be positioned to accommodate casings while still being electrically connected and thus functional, as taught by Kalis.

Regarding claim 3, Kabler in view of McConnell and Kalis, teach all the claimed limitations as recited in claim 2. McConnell and Kalis further teach of including the step of mechanically connecting the shielding to the ground plane of the motherboard (McConnell: starting column 1, line 63 and ending column 3, line 7 and Kalis: column 3, lines 26 – 50 and Figure 4; not that as the boards are electrically connected, the ground plane is now functionally common).

Regarding claim 7, Kabler in view of McConnell and Kalis, teach all the claimed limitations as recited in claim 2. McConnell and Kalis further teach of wherein the GPS receiver has a system ground and further including the step of electrically connecting the shielding to the system ground of the GPS receiver (McConnell: starting column 1, line 63 and ending column 3, line 7 and Kalis: column 3, lines 26 – 50 and Figure 4; not that as the boards are electrically connected, the ground plane is now functionally common).

Regarding claim 19, Kabler in view of McConnell teach all the claimed limitations as recited in claim 15. Kabler further teaches of wherein the motherboard has ground plane (column

4, lines 1 – 20; note the concept is inherent to all boards in general as if current is to flow, a ground must be present).

Kabler does not specifically teach of wherein said shielding is electrically connected to said ground layer (though it should be noted that Kabler teaches of operatively combining all boards in column 4, lines 1 – 5 and McConnell teaches of attachment to the ground plane starting column 1, line 63 and ending column 2, line 7).

In a related art dealing with connecting circuit boards, Kalis teaches of wherein said shielding is electrically connected to said ground layer (Figure 4, starting column 1, line 66 and ending column 2, line 2 and column 3, lines 26 – 49; note that McConnell’s shield is connected to ground).

It would have been obvious to one skilled in the art at the time of invention to have included into Kabler and McConnell’s mobile, Kalis’ board connectivity methods to create electrical connections (and thus a common ground), for the purposes of allowing boards to be positioned to accommodate casings while still being electrically connected and thus functional, as taught by Kalis.

Regarding claim 20, Kabler in view of McConnell teach all the claimed limitations as recited in claim 15. Kabler in view of McConnell do not specifically teach of wherein said GPS receiver has a system ground and wherein said shielding is electrically connected to said system ground (though it should be noted that Kabler teaches of operatively combining all boards in column 4, lines 1 – 5 and McConnell teaches of attachment to the ground plane starting column 1, line 63 and ending column 2, line 7).

In a related art dealing with connecting circuit boards, Kalis teaches of wherein said GPS receiver has a system ground and wherein said shielding is electrically connected to said system ground (Figure 4, starting column 1, line 66 and ending column 2, line 2 and column 3, lines 26 – 49; note that McConnell's shield is connected to ground).

It would have been obvious to one skilled in the art at the time of invention to have included into Kabler and McConnell's mobile, Kalis' board connectivity methods to create electrical connections (and thus a common ground), for the purposes of allowing boards to be positioned to accommodate casings while still being electrically connected and thus functional, as taught by Kalis.

6. Claim 4, 6, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kabler et al. (Kabler, US Patent No. 6,128,515) in view of McConnell et al. (McConnell, US Patent No. 6,593,897) as applied to claims 1, 5, and 15 above, and further in view of Perkins et al. (Perkins, US Patent No. 6,409,173).

Regarding claims 4, 6, and 18 Kabler in view of McConnell, teach all the claimed limitations as recited in claims 1, 5, and 15. Kabler in view of McConnell do not teach of wherein the shielding includes zinc.

In a related art dealing with shielding, Perkins teaches of wherein the shielding includes zinc (Figure 1 and column 3, lines 32 – 36).

It would have been obvious to one skilled in the art at the time of invention to have included into Kabler and McConnell's mobile with shield, Perkins' zinc shield, for the purposes of providing a thermally conductive material that reduces EMI (by grounding interference), as taught by Perkins.

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7. Claims 8, 9, 16, and 17 rejected under 35 U.S.C. 103(a) as being unpatentable over Kabler et al. (Kabler, US Patent No. 6,128,515) in view of McConnell et al. (McConnell, US Patent No. 6,593,897) as applied to claims 1 and 15 above, and further in view of Tiburtius et al. (Tiburtius, US Patent No. 6,323,418).

Regarding claim 8, Kabler in view of McConnell, teach all the claimed limitations as recited in claim 1. Kabler further teaches of wherein the handset has a housing and wherein the housing includes a pod for carrying the GPS receiver (Figure 4 and column 4, lines 1 – 4).

Kabler in view of McConnell do not specifically teach of further including the steps of providing the walls of the pod with shielding.

In a related art dealing with shielding using housing, Tiburtius teaches of providing the walls of the pod with shielding (Figure 1 and column 3, lines 48 – 58).

It would have been obvious to one skilled in the art at the time of invention to have included into Kabler and McConnell's mobile, Tiburtius' shielding, for the purposes of protecting circuitry from EMI from mobile transmitters, as taught by Tiburtius.

Regarding claim 9, Kabler in view of McConnell and Tiburtius, teach all the claimed limitations as recited in claim 8. Tiburtius further teaches of wherein the pod-carried shielding forms a Faraday cage about the GPS receiver (column 4, lines 1 – 8).

Regarding claim 16, Kabler in view of McConnell, teach all the claimed limitations as recited in claim 15. Kabler further teaches of wherein said housing includes a bulkhead between said phone motherboard and said GPS receiver (Figures 3 and 4 and column 3, lines 9 – 21; note that by definition from Merriam and Webster's Collegiate Dictionary, 10th Edition, a bulkhead is defined as "an upright partition separating compartments").

Kabler in view of McConnell do not specifically teach of wherein said bulkhead has said shielding affixed thereto.

In a related art dealing with shielding using housing, Tiburtius teaches of wherein said bulkhead has said shielding affixed thereto (Figure 1 and column 3, lines 48 – 58).

It would have been obvious to one skilled in the art at the time of invention to have included into Kabler and McConnell's mobile, Tiburtius' shielding, for the purposes of protecting power, display, audio, and other circuitry from EMI from mobile transmitters, as taught by Tiburtius.

Regarding claim 17, Kabler in view of McConnell and Tiburtius, teach all the claimed limitations as recited in claim 16. Tiburtius further teaches of wherein said shielding is in the form of a conductive layer on said bulkhead (Figure 1 and column 3, lines 48 – 58).

8. Claim 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kabler et al. (Kabler, US Patent No. 6,128,515) in view of McConnell et al. (McConnell, US Patent No. 6,593,897) as applied to claim 10 above, and further in view of Hill (Hill, US Patent No. 6,404,394).

Regarding claim 11, Kabler teaches all the claimed limitations as recited in claim 10. Kabler in view of McConnell do not teach of further including providing heavily shielded coaxial cable between the output connector and the GPS receiver.

In a related art teaching of GPS and dual polarized antennas, Hill teaches of further including providing heavily shielded coaxial cable between the output connector and the GPS receiver (Figures 6 and 7 and starting column 3, line 64 and ending column 4, line 7).

It would have been obvious to one skilled in the art at the time of invention to have included into Kabler and McConnell's mobile, Hill's shielding co-ax, for the purposes of connecting the receiver to the antenna without adding EMI, as taught by Hill.

Regarding claim 12, Kabler in view of McConnell and Hill, teach all the claimed limitations as recited in claim 11. Hill further teaches of wherein the heavy shielding is provided by semi-rigid coaxial cable (Figures 6 and 7 and starting column 3, line 64 and ending column 4, line 7).

9. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kabler et al. (Kabler, US Patent No. 6,128,515) in view of McConnell et al. (McConnell, US Patent No. 6,593,897) as applied to claim 10 above, and further in view of McGrath et al. (McGrath, US Patent No. 6,272,349).

Regarding claim 13, Kabler in view of McConnell teach all the claimed limitations as recited in claim 10. Kabler in view of McConnell do not specifically teach of wherein the GPS antenna includes a filter coupled to the output connection to filter out components to either side of the GPS antenna frequency.

In a related art dealing with GPS receivers, McGrath teaches of wherein the GPS antenna includes a filter coupled to the output connection to filter out components to either side of the GPS antenna frequency (column 3, lines 1 – 16).

It would have been obvious to one skilled in the art at the time of invention to have included into Kabler and McConnell's mobile, McGrath's filter, for the purposes of better reception (as less noise would be present in the bandwidth), as taught by McGrath.

Regarding claim 14, Kabler in view of McConnell and McGrath, teach all the claimed limitations as recited in claim 13. McConnell further teaches of wherein the GPS antenna includes a low noise amplifier for amplifying the signal from the GPS antenna to compensate for losses due to the insertion of the filter (Figures 7 and 8 and column 4, lines 28 – 41).

Citation of Pertinent Prior Art

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Inventor	Publication	Number	Disclosure
Cho	US Patent Application	2001/0008839	Flip Type Terminal with Slim Style Microstrip Patch Antenna for GPS and Method Thereof
Sanford et al.	US Patent	6,424,300	Notch Antennas and Wireless Communications Incorporating Same
Janky	US Patent	5,786,789	GPS and Cellphone Unit Having Add-On Modules

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tanmay S Lele whose telephone number is (703) 305-3462. The examiner can normally be reached on 9 - 6:30 PM Monday – Thursdays and on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay A. Maung can be reached on (703) 308-7745. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-0377.

R
Tanmay S Lele
Examiner
Art Unit 2684

tsl
August 23, 2003

Nay Maung
NAY MAUNG
PRIMARY EXAMINER